REMARKS

Claims 1-2, 5-10 and 18-31 are now pending in the application. Claims 1-2, 5-6, 18-21, 24, 26 and 28-30 have been amended herein. Claims 3, 4 and 11-17 have been canceled without prejudice or disclaimer. Favorable reconsideration of the application, as amended, is respectfully requested.

I. OBJECTIONS TO THE DISCLOSURE

The Examiner objects to the disclosure based on the informalities noted on page 2 of the Office Action. Applicant has adopted the Examiner's suggestions as noted in the above amendments to the specification. Withdrawal of the objections is respectfully requested.

II. OBJECTION TO THE DRAWINGS

The drawings are objected to for failing to include the general reference label --80– in Figs. 4A and 4B. Submitted herewith is a formal request for approval to add such label to the figures. Withdrawal of the objection is respectfully requested.

III. REJECTION OF CLAIMS 6 AND 18-31 UNDER 35 USC §112, 2nd ¶

Claims 6 and 18-31 stand rejected under 35 USC §112, second paragraph, as being indefinite for the reasons recited on page 3 of the Office Action.

Claims 6, 18-21, 24, 26 and 28-30 have been amended as noted above to address each of the Examiner's concerns. The claims are now believed to be more definite. Withdrawal of the rejection is respectfully requested.

IV. OBJECTION TO CLAIMS 2, 4, 11, 18 AND 19

Claims 2, 4, 11, 18 and 19 stand objected to for the reasons noted on pages 3 and 4 of the Office Action. As noted above, the claims have been amended in the manner suggested by the Examiner so as to further clarify the claims. Withdrawal of the objection is respectfully requested.

V. REJECTION OF CLAIMS 1-3, 9 AND 10 UNDER 35 USC §102(b)

Claims 1-3, 9 and 10 stand rejected under 35 USC §102(b) based on *Cook*. Withdrawal of the rejection is respectfully requested for at least the following reasons.

Claim 1 has been amended to emphasize that the present invention is unlike a conventional magnetron in that there are not a plurality of resonant cavities within the anode-cathode space. Rather, the present invention utilizes a common resonator which is coupled to the anode-cathode space by a plurality of waveguides. But for the openings of the waveguides into the anode-cathode space, there are no resonant cavities.

Claim 1 has been amended to emphasize such features. Support for amended claim 1 is found, for example, in Figs. 1-4.

Cook does not teach or suggest a source of electromagnetic radiation as recited in amended claim 1. For example, *Cook* does not include a plurality of waveguides as recited in amended claim 1. Rather, *Cook* merely includes radial vanes 16 which define resonant cavities 18. Slots 19 are used to couple alternate cavities 18 to resonant cavity 20. (Col. 2, lns. 1-13).

Moreover, *Cook* does not teach or suggest a surface of the anode including no openings to resonant cavities other than to waveguides coupling the anode-cathode space to the common resonator as recited in amended claim 1. *Cook* teaches at least half the number of resonant cavities not being coupled to the resonant cavity 20.

Regarding claim 9, *Cook* does not teach or suggest the circumference of the surface of the anode being greater than λ, where λ is the wavelength of the operating frequency.

Accordingly, *Cook* does not teach or suggest the present invention as recited in amended claim 1 and the claims dependent therefrom. Withdrawal of the rejection is respectfully requested.

VI. REJECTION OF CLAIMS 4-8 UNDER 35 USC §103(a)

Claims 4-8 stand rejected under 35 USC §103(a) based on *Cook* in view of *Sakiyami*. Withdrawal of this rejection is also respectfully requested for at least the following reasons.

Remaining claims 5-8 each depend from claim 1 either directly or indirectly. Consequently, these claims can be distinguished over the teachings of *Cook* for at least the same reasons given above.

Moreover, *Sakiyami* does not make up for the deficiencies in *Cook*. *Sakiyami* admittedly teaches a "rising sun" configuration. However, *Sakiyami* does not teach or suggest a plurality of waveguides as recited in amended claim 1. Rather, *Sakiyami* merely includes radial vanes 3,6 which define resonant cavities.

Furthermore, *Sakiyami* does not teach or suggest a surface of the anode including no openings to resonant cavities other than to waveguides coupling the anode-cathode space to the common resonator as recited in amended claim 1.

Accordingly, withdrawal of the rejection is respectfully requested.

VII. REJECTION OF CLAIMS 11-17, 18, 19, 21-25 AND 27-31 UNDER 35 USC §103(a)

Claims 11-17, 18, 19, 21-25 and 27-31 stand rejected under 35 USC §103(a) based on *Cook* in view of *Burns* or *Crawford et al.* Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 18 has been amended herein to emphasize another one of the features of the present invention. Specifically, claim 18 has been amended to recite that a circumference of the pattern of N electrodes defining the anode-cathode space is greater than λ, where λ represents the wavelength of the operating frequency of the electromagnetic radiation source. Support for such amendment is found, for example, at page 16, lines 10-19, and original claim 9.

The electromagnetic radiation source of claim 18 is different from conventional magnetrons in that it is designed such that the circumference of the anode surface is substantially greater than the wavelength λ. This permits an optical electromagnetic

radiation source which is practical both in the sense that it does not require extremely high magnetic fields and it can be the same size as a conventional magnetron used in the microwave band, for example. (See, e.g., Spec., p. 1, ln. 14 to p. 2, ln. 17).

Most notably, the electromagnetic radiation source of claim 18 does not represent simply a scaling down of the magnetron dimensions taught in conventional magnetrons as disclosed in *Cook*, *Burns* or *Crawford et al.* This is because the magnetron of claim 18 represents a different approach to constructing a device which heretofore was not found in the prior art. Nor were the advantages associated with such a construction taught or suggested in the prior art.

In rejection claim 9, the Examiner implies that *Cook* teaches a circumference of the pattern of N electrodes defining the anode-cathode space is greater than λ. However, this is contrary to conventional magnetron design. There is nothing in *Cook* that suggests anything other than conventional design. The same is said with respect to *Burns* and *Crawford et al.*

Accordingly, withdrawal of the rejection of claim 18 and the claims dependent therefrom is respectfully requested.

Furthermore, the various dependent claims may be further distinguished based on the particular limitations included therein. For example, claims 20 and 26 have not been rejected on substantive grounds and are therefor presumably allowable.

Claim 30 refers to upper and lower magnetic pole pieces defining the upper and lower parts of the anode-cathode as defining a waveguide between the electrodes and the common resonant cavity. (See, e.g., Figs. 5-7). None of the references teach or suggest such a waveguide linking the electrodes and the common resonant cavity.

Claim 31 recites that the waveguide is an integer multiple of $\lambda/2$ in length. The references also fail to teach or suggest a waveguide having such a length.

Thus, withdrawal of the rejection of all the claims is respectfully requested.

VIII. INFORMATION DISCLOSURE STATEMENT

Applicant is filing herewith an Information Disclosure Statement citing references recently cited in a corresponding international application. The claims are distinguishable over such references for at least the same reasons stated above.

X. CONCLUSION

Accordingly, all claims are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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DATE: May 20, 2003

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